G. R. S. 59]

GPB—15,000—20 12-13

# GENERAL AND REVENUE SECRETARIAT.

1913:14

( Sanitary )

## File No. 77-13

## Serial Nos. 1 - 2

## Papers Filed.

*Month* February 1914

SUBJECT.

Fumigation by burning neem leaves as a plague disinfectant.

| PREVIOUS REFERENCES. | LATER REFERENCES. |
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| | San 88-13.1-4 |

3991

G.R.S. 11] 1913-14

GENERAL AND REVENUE SECRETARIAT.

(Sanitary)

NOTES.

File No. 77-13

FILE HEADING.

Fumigation by burning neem leaves as a plague disinfectant.

From

The Sanitary Commissioner

No. 2802 Dated 13. 1. 14 Received 16. 1. 14

| Diary No. 3991 | Enclos. 2 | Spare Copies. | Serial No. 1 |
|---|---|---|---|

BRIEF ABSTRACT OF LETTER.

Forwards an extract from the supplement to the Sanitary Report of Bihar for the year 1912, regarding fumigation by burning neem leaves as a plague disinfectant and suggests that the extract may be published in the Bengal Gazette.

NOTES AND ORDERS.

The chief methods of disinfection adopted are by desiccation and by Kerosine oil emulsion (vide para 219 the plague administration report for the year 1911-12). The Sanitary disinfection Commissioner recommends that the burning of neem leaves may be adopted to supplement desiccation and the use of Kerosine oil emulsion

NOTES—First Sheet.

GPB—35,000—15-6-12

| Serial No. | |
|---|---|
| | Submitted with draft for approval or other orders |
| | 57 22.1.14 |
| | Draft may be approved<br>Benjamin Thomas 27/1. |
| | 2nd Counsellor |
| | Draft approved by the 2nd Mr 29/1/14<br>by 29/1 Secy 29/1. |
| | Ernest Barn 29/1 |
| 2 | To the Comptroller, Japan Gazette, No. 7481 of 3.2.14<br>Notice for general information the extract reported in serial No 1. |
| | To the Secretary Commissioner, No. 7482 of 3.2.14<br>Forwarded copy of serial No 2 |

page 179 part IV of the Japan Gazette dated 5.2.1914

NOTE—Contn. sheet.

GPB—60,000—7-11-13

W 191 Sany Bob

191

From

The Sany. Commissioner in Mauritius.

To

The Secretary to Govt. Gen. Miss. Depte.

Dated 13th January 1914

Despatched

Received

General No. 20

No.

Enclosure No. 2

Forwarding an extract from a report on fumigation with burning neem leaves as a plague disinfectant.

GPB—50,000—26-9-12

D 3991

Sp 2802
Encl

7. M. 77-13-1

Office of the Sanitary Commissioner
with the Government of Mysore,

Bangalore dated the 13 January 1914

From

Rao Bahadur
T.V. Arumugam Mudaliar Esq.,
Sanitary Commissioner with the
Government of His Highness the
Maharaja of Mysore, Bangalore

To

K.R. Srinivasa Iyengar Esq., M.A.,
Secretary to the Government of His
Highness the Maharaja of Mysore,
General & Revenue Departments,
B a n g a l o r e

San 77-13
Sl-1

Sir,

I have the honor to forward herewith an extract from the supplement to the Sanitary Report of Bihar, for 1913, regarding fumigation by burning Neem leaves as a Plague disinfectant and to suggest that the extract may be published in three successive issues of the Mysore Gazette. I recommend this as a most efficient and cheap disinfectant of Plague infected houses.

2. I also enclose for the information of Government a copy of my letter on the subject addressed to the Deputy Commissioners of Districts, and the Presidents of the Bangalore and Mysore City Municipalities. The extract has been sent to the Senior Surgeon for communication to all the Medical Officers and subordinates in the State.

I have the honor to be,
Sir,
Your most obedient servant,

T.V. Arumugam

Sanitary Commissioner.

P.H.

Entomological Misc. 77-13



# Fumigation with burning neem leaves as a Plague disinfectant.

-+++-

Finding I was frequently asked by Europeans and Indians alike in this District ( Saran ) for a simple house disinfectant I began a series of experiments in January 1912, with substances that would be likely to kill off rats in Plague infected houses. I sought a substance that could be so applied that it would search out all lurking places of rats and kill them. The method of fumigation suggested itself to me at once. I experimented in my servant's godowns as follows. Rats in traps where suspended from the roof, placed on the ground, under bundles of clothes, etc., in a godown. Thirty to fifty cow-dung cakes or chapaties ( easily obtained of course in every village ) were arranged in a loose circle in the centre of the cleared floor of a hut and set on fire, with or without the aid of a little kerosine oil. The various substances to be experimented with were piled on the burning cow-dung chapaties when well alight, the doors and windows were shut and the fire was allowed to burn itself out. In this way rats were subjected to the fumes of innumerable burning substances in turn, but although a number of experiments were performed, the rats ( though occasionally showing signs of distress ) survived as a general rule.

In the course of examining some rats after the experiments I noticed some dead fleas on some that had been fumigated with neem leaves. I repeated the experiments with neem leaves, but surrounded the rat-

rat-traps, except on top, with muslin. I then found that in practically every case the rats were found to be free from fleas, but the muslin under the traps contained a number of dead fleas. Some further experiments shewed that the longer the rats were exposed to the neem fumes the greater the number of dead fleas that were found. The best results were obtained by an exposure of over two hours, and up to three hours.

I now experimented with a large number of other substances, but failed to discover any better pulicide than the fumes of fresh neem leaves.

Believing then, that this is the best method of breaking the chain of infection from rat to man, I had instructions printed in pamphlet form and had them distributed in thousands all over the Districts, by the Plague Staff last season.

It is not necessary to dry the neem leaves; they can be used, and in fact are most effective when taken direct from the tree, and burnt. They give off a dense penetrating smoke.

I believe there are great possibilities in this simple and inexpensive method of disinfection for Plague which I consider to be the most practicable that is available at present.

Sd/- J.H. Delany, M.D., F.R.C.S.I,
Major I.M.S.

Copy

Sanitary Commissioner.

Letter No. .... dated then... January 1911

from the Sanitary Commissioner in Mysore to the Dy. Comm'rs of Districts and the Presidents of Bangalore and Mysore City the Municipalities.

-:-:-:-

I have the honor to forward the accompanying extract from a report on the results of some interesting experiments on the efficacy of fumigation with burning neem leaves as a Plague disinfectant and to recommend that the method may, wherever possible, be adopted to supplement desiccation and the use of kerosine oil emulsion. It involves little or no cost and, as it conforms to popular tradition, is likely to appeal to the masses.

" Copy "

Sanitary Commissioner.

P.H.

G. R. S. 26]

File No.

Serial No.

*Diary No. of letter replied to* 3991

No. 7461 Sanitary 7-13-2

dt 2.2.14.

To

General and Revenue Secretariat

( Sanitary )

*the* *191*

Notification

Date of issue 2.2.14

The following extract from the note of Major J. A. Delany, M.D. I.M.S. ~~[illegible]~~ in the Supplement to the annual Sanitary Report of the province of Bihar and Orissa, for the year 1912, regarding fumigation by burning neem leaves as a phyno-disinfectant is published for general information.

Signed by Mr. A. R. Ramanathan

(Here copy the extract)

By order

Asst. Secretary

over.

SUBJECT.

Memo 7482 Sanity 77-13

Copy of the above is forwarded to the Secretary Board of Trade with reference to their letter No. 2802 dated the 13th January 1914.

Byrne

Jan 30/1 Secretary.

*List of enclosures.*

*Copied by* WL/ 31-1-14

*Examined by*

GPB—25,000—8-8-11.